

METHOD AND APPARATUS FOR PROCESSING OPTICAL DUOBINARY SIGNALS**ABSTRACT OF THE DISCLOSURE**

5 An optical receiver adapted to apply multiple-sampling processing to an optical duobinary
signal received over a transmission link in an optical communication system. In one embodiment,
the receiver has an optical-to-electrical signal converter coupled to a decoder adapted to process an
electrical signal generated by the converter to generate a bit sequence corresponding to the optical
signal. To generate a bit value, the decoder first obtains two or more bit estimate values by
10 sampling the electrical signal within a corresponding signaling interval two or more times. The
decoder then applies a logical function to the bit estimate values, which produces the
corresponding bit value for the bit sequence. Advantageously, embodiments of the present
invention improve overall back-to-back (i.e., source-to-destination) system performance, e.g., by
reducing the number of decoding errors associated with timing jitter and/or spontaneous beat noise
in the received optical signal.